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Sealing strips

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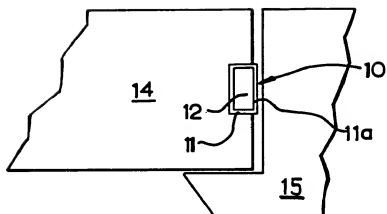


FIG.1

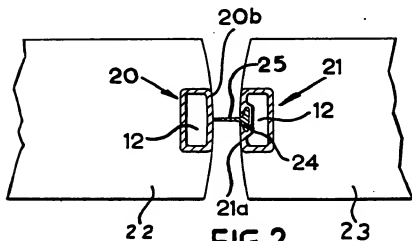


FIG.2

"SEALING STRIPS"

The present invention relates to sealing strips and in particular sealing strips for use with doors for providing a firm resistant seal.

5 It is known to provide fire resistant sealing strips having a holder containing intumescent material which under hot environmental conditions expands and exudes from the holder to form a fire resistant seal. Examples of such sealing strips are disclosed in U.K. patent specifications 1529054, 1529733, and 1543757.

10 The holders disclosed in U.K. patent specifications 1529054, 1529733 and 1543757 are preferably extrusions of a high thermal conductive material such as aluminium or copper so that the intumescent material contained within the holder is heated by all the surrounding walls of the holder.
15 These holders are normally recessed into the door frame or door edge and a disadvantage of constructing the holder from a material of high thermal conductivity is that the wood surrounding the holder is also heated by the walls of the holder and consequently the wood on the side of the door
20 opposite to where the fire is located could begin to smoulder and create fumes.

The intumescent material used in the sealing strips disclosed in U.K. patents 1529054, 1529733 and 1543757
intumesces within the range of 150 - 250°C.

25 The holders described in these U.K. patent specifications are made of a material which substantially retains its shape when exposed to the temperature range 150 - 250°C and so the holders are provided openings or areas of weakness in the holder through which the intumescent
30 material may exude in the event of a fire.

Provision of apertures has the disadvantage of exposing the intumescent material which is undesirable in view of the fact that the intumescent material will normally deteriorate in a moist environment and also due to the possibility of

the intumescent material being removed by unauthorised persons. To avoid these problems, it is suggested in the above U.K. patent specifications that the openings may be covered with metal foil, or a resin or that a baffle may
5 be provided which extends across the opening.

It is a general object of the present invention to provide a sealing strip, in particular a smoke/fire sealing strip having a holder containing intumescent material and which obviates the need to provide openings/areas of
10 weakness through which the intumescent material may exude in the event of a fire.

According to the present invention there is provided a sealing strip having an elongate holder containing an intumescent material for attachment to a structure, the
15 holder being a unitary extrusion having a cross-sectional shape which completely surrounds the intumescent material, the holder being extruded from a thermal plastics material which at room temperature protects the intumescent material but responds to temperature increase so as to be
20 pliable when the intumescent material intumesces in order to enable the intumescent material to burst through the walls of the holder.

Preferably the intumescent material is composed mainly of hydrated sodium silicate so that it intumesces
25 at about 100°C. Preferably the holder is extruded from a thermo-plastics material which at 100°C is at least in a pliable state so as to enable the intumescent material to burst through its walls. A suitable plastics material is rigid polyvinylchloride.

30 Advantageously, the holder may be provided with a smoke seal which preferably remains as an effective smoke seal until the intumescent material intumesces.

Reference is now made to the accompanying drawings, in which:-

35 Figure 1 is a schematic cross-sectional view of a first embodiment according to the present invention shown in situ;

Figure 2 is a schematic cross-sectional view of a

second embodiment according to the present invention shown in situ.

Referring initially to Figure 1 the sealing strip 10 includes an elongate holder 11 which is extruded from a suitable plastics material such as rigid polyvinylchloride.

The intumescent material 12 contained within the holder 11 is composed largely of hydrated sodium silicate and begins to intumesce at about 100°C. A suitable commercially available intumescent material is PALUSOL (Registered Trade Mark) marketed by BASF Aktiengesellschaft. As shown in Figure 1, the strip 10 is recessed into an edge of a door 14. In the event of a fire the exposed wall 11a of the holder 11 is subjected to heat and becomes pliable and begins to intumesce. The intumescent material also intumesces and bursts through the exposed wall 11a to form a fire resistant seal between the edge of the door and the door jamb 15.

A second embodiment is illustrated in Figure 2 in which a pair of opposed sealing strips 20, 21 are recessed into opposed edges of a pair of doors 22, 23. Sealing strip 20 is basically the same construction as that illustrated in Figure 1 except that the cross-sectional shape of the holder is different. In this respect sealing strip 20 has an exposed wall 20b which is contoured.

Sealing strip 21 is of similar construction as that illustrated in Figure 1 except that the exposed wall 21a is provided with a channel 24 in which is received a smoke seal 25 which extends the length of the holder and which projects from sealing strip 21 to engage and wipe over the exposed wall 20a of sealing strip 20. The smoke seal 25 may be conveniently in the form of a tongue formed from a

suitable plastics or elastomeric material or may be in the form of an elongate brush formed from a suitable plastics material such as a polyamide. A brush made from a polyamide is preferred since it provides an effective smoke seal until the intumescent material intumesces to form a fire seal.

It is also envisaged that the smoke seal 25 may be extruded integrally with the holder, for example the holder may be extruded from rigid polyvinylchloride while the smoke seal could be extruded simultaneously from soft polyvinylchloride.

It is envisaged that the side walls of the holder may be provided with ribs for facilitating securance of the holder within the recess formed in the door.

The above described sealing strips are easy to manufacture and provide an effective fire seal at a fairly low temperature. Additionally, where a smoke seal is also provided an effective smoke seal is retained until the intumescent material has created an effective fire/smoke seal.

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CLAIMS

1. A sealing strip having an elongate holder containing an intumescent material for attachment to a structure, the holder being a unitary extrusion having a cross-sectional shape which completely surrounds the intumescent material,
5 the holder being extruded from a thermal plastics material which at room temperature protects the intumescent material but responds to temperature increase so as to be pliable when the intumescent material intumesces in order to enable the intumescent material to burst through the
10 walls of the holder.
2. A sealing strip according to Claim 1 wherein the holder is provided with a smoke seal.
3. A sealing strip according to any preceding claim wherein the intumescent material intumesces at about
15 100°C.
4. A sealing strip according to Claim 3 wherein the holder is formed of rigid polyvinylchloride.
5. A sealing strip substantially as described with reference to and as illustrated in any of the accompanying
20 drawings.

The text of the specification has been reproduced by photocopying the applicants original typescript. It may contain a few amendments which are difficult to read. The original typescript containing these amendments may be inspected on the premises of the Patent Office

